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(54) **A liquid composition having a moth-repelling effect.**

(57) The moth-repelling composition of the invention utilizes a clove-tree leaf essential oil coming from Madagascar in association with citronella oil from Java, Patchouly 35501, lavender extract from Marseille, lavender extract from Apt, and lavender extract from Vaucluse, as well as fixolide and benzyl salicylate as preservative agents and various other components.

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This invention relates to a liquid composition having a moth-repelling effect, wherein the composition is based on natural components having no harmful influence on human body and whose moth-repelling effect is more extended in time.

In particular, the composition according to the invention makes use of the following substances as its active components:

- essential oil of Clove-tree leaf from Madagascar,
- citronella oil from Java,
- Patchouly 35501,
- lavender extract from Marseille,
- lavender extract from Apt
- lavender extract from Vaucluse; as well as benzyl salicylate and fixolide, these latter acting as preservatives for the product to keep effectiveness of the product over a longer period of time.

The composition according to the invention falls within the class of products having a repelling effect on moths, that is products capable of giving off vapours over a certain period of time which are moth-repellent because of them being highly irritant to these insects.

These products can act, as the case may be, by evaporation or sublimation of the substances composing the moth-repelling preparation, which on turn, can be from either natural or synthetic source. In case of synthetic products, the vapours they give off are usually toxic to moths which generally die when in a space full of the vapours, as it happen, for example, inside a wardrobe.

However, this toxicity also affects, though to a very lower extent, human beings who inhale said vapours, for example, when staying in a room where the wardrobe is placed.

Natural compositions with low or no toxicity are also known.

Examples of products of this type presently in use are citronella, lavender, or clove oil used either individually or in combination.

These compositions have, however, not found widespread acceptance hitherto in that these natural products have in general relatively poor and/or very short effectiveness, so that it is necessary to use the product in more concentrated form and/or to replace it frequently which is not cost effective.

In view of the above, a need has been felt in this connection for a product which has good moth-repelling property while maintaining its effectiveness over longer period of time, and which is non-toxic to the human body.

These objectives are attained with the composition according to this invention which is the result of many thorough experiments by the applicant and whoses features are as defined in the characterizing parts of the annexed claims.

The moth-repelling composition of the invention utilizes a clove-tree leaf essential oil coming from Madagascar in association with citronella oil from Java, Patchouly 35501, lavender extract from Marseille, lavender extract from Apt, and lavender extract from Vaucluse, as well as fixolide and benzyl salicylate as preservative agents and various other components to be described later.

By the use of the components referred to above the inventor has been able to work out a composition which is much more powerful in efficiency than similar products of the prior art and whose effectiveness can last over a period of 1 to 3 months, depending on physical and thermal conditions in a room, a result which can be considered as satisfactory.

The moth-repelling compound of the invention has the composition as follows:

- 1) 4 to 6 parts per thousand (p.p.m., in the following) by weight, preferably 5 p.p.m. by weight Linalöl synth (3,7-Dimethyl-1.6-ocatadien-3-ol),
- 2) 12 to 18 p.p.m. by weight, preferably 15 p.p.m. by weight Linalylacetat synth (Linalöl acetate),
- 3) 20 to 30 p.p.m. by weight, preferably 25 p.p.m. by weight Lavendelöl supérieure absolue Ether (a lavender extract from Marseille - France),
- 4) 50 to 70 p.p.m. by weight, preferably 60 p.p.m. by weight Lavendelöl HT E 2294 (a lavender oil from Apt - France),
- 5) 50 to 70 p.p.m. by weight, preferably 60 p.p.m. by weight Lavendelöl Maillette 7-59 (a lavender oil from Vaucluse - France),
- 6) 40 to 60 p.p.m. by weight and preferably 50 p.p.m. by weight Fixolide (7 - Acetyl - 1,1,3,4,4,6, - hexamethyl - tetralin),
- 7) 40 to 60 p.p.m. by weight and preferably 50 p.p.m. by weight Benzylsalicylat LG (Benzyl 2 - hydroxybenzoate benzyl salicylate),
- 8) 90 to 110 p.p.m. by weight and preferably 100 p.p.m. by weight Resinoid Benzoe Siam 50% gereinigt (purified Benzoe-plant resin, an oil with a proper aroma coming from Thailand),

9) 90 to 110 p.p.m. by weight and preferably 100 p.p.m. by weight Eau de Cologne S. 1243 (a product available from Essencie AG, Winterthur (CH)).

10) 90 to 110 p.p.m. by weight and preferably 100 p.p.m. by weight Orphea E 226 (a product available from Essencie AG, Winterthur CH)).

11) 90 to 110 p.p.m. by weight and preferably 100 p.p.m. by weight Bouquet E 163 (a light yellow-to-brown-coloured essential oil based on Methyljonon, Hydroxycitronellal), (a product sold by Essencie AG, Winterthur (CH)).

12) 250 to 300 p.p.m. by weight and preferably 280 p.p.m. by weight Patchouly 35501 Esrolko 9355010 (a red-to-brown-coloured essence coming from Indonesia based on Patchoulyöl Indonesien, Nopylacetat, a product available from Givaudan SA, Genf (CH)).

13) 30 to 40 p.p.m. by weight and preferably 35 p.p.m. by weight Orphea 11445 Esrolko 9114450 (a sweet-smelling orange-coloured essential oil based on Hydroxycitronellal, Citronellol, a product available from Givaudan SA, Genf (CH)).

14) 5 to 15 p.p.m. by weight and preferably 10 p.p.m. by weight Citronellaöl Java, 85/35% ph. H.VI. Mel. Ind. (citronella oil from Java) - an insect repellent,

15) 5 to 15 p.p.m. by weight and preferably 10 p.p.m. by weight Nelkenblätteröl 80/85 % hell (a clove-tree leaf essential oil from Madagascar).

Products 1) and 2) are substances having a proper aroma which is repellent for insects.

Compound 15), a clove-tree leaf essential oil from Madagascar, has shown to be determinant in keeping off moths from wool clothes, while products 6) and 7), Fixolide and Salol, act to preserve the product so as to cause it to maintain its effectiveness for a longer time.

The olfactory perception produced by the moth-repelling vapours is pleasant due to these vapours being sweet-smelling.

According to a preferred embodiment of the invention, use is made of an absorbent paper as the mechanical support for the composition which is produced in liquid state, the absorbent paper being impregnated with the composition. However, many other types of supports may also be utilized as long as the used support is of adequate porosity and is workable in character so that support shapes most adapted for individual specific applications can be obtained.

The single used substances have been referred to above with the names under which these substances are designated by their manufacturers and known by those skilled in the art.

The thus obtained product has undergone many tests showing the product to have considerable effectiveness and be capable of exerting its activity over a sufficiently extended period of time ranging from 1 to 3 months.

This formulation may be completed, if necessary, by adding other compounds such as Piretro or Permetrina, etc., to it.

## Claims

1. A liquid composition capable of giving off moth-repelling vapours, characterized in that the following compounds are utilized in said composition:

- Lavendelöl supérieure absolue Ether (a lavender extract from Marseille - France),
- Lavendelöl HT E 2294 (a lavender oil from Apt - France),
- Lavendelöl Maillette 7-59 (a lavender oil from Vaucluse, France),
- Fixolide (7 - Acetyl - 1,1,3,4,4,6, - hexamethyl - tetralin),
- Benzylsalicylat LG (Benzyl 2 - hydroxybenzoate, benzyl salicylate),
- Patchouly 35501 Esrolko 9355010, a red-to-brown-coloured essential oil from Indonesia (based on Patchoulyöl Indonesien, Nopylacetat, a product available from Givaudan SA, Genf (CH)),
- Citronellaöl Java, 85/35% ph. H. VI. Mel. Ind. (citronella oil coming from Java), an insect repellent,
- Nelkenblätteröl 80/85 % hell (a clove-tree leaf essential oil from Madagascar).

2. The moth-repellent composition according to claim 1, characterized in that the composition comprises:

- 4 to 6 p.p.m. (parts per thousand) by weight Linalöl synth (3,7-Dimethyl-1.6-octadien-3-ol),
- 12 to 18 p.p.m. by weight Linalylacetat synth (Linalöl acetate),
- 20 to 30 p.p.m. by weight Lavendelöl supérieure absolue Ether,
- 50 to 70 p.p.m. by weight Lavendelöl HT E 2294 (a lavender essential oil from Apt - France),
- 50 to 70 p.p.m. by weight Lavendelöl Maillette 7-59 (a lavender essential oil from Vaucluse - France),
- 40 to 60 p.p.m. by weight Fixolide (7 - Acetyl - 1,1,3,4,4,6, - hexamethyl - tetralin),

- 40 to 60 p.p.m. by weight Benzylsalicylat LG (Benzyl salicylate),
- 90 to 110 p.p.m. by weight Resinoid Benzoe Siam 50% gereinigt (purified Benzoe-plant resin, an essential oil with a proper aroma, coming from Thailand),
- 90 to 110 p.p.m. by weight of Eau de Cologne S. 1243 (a product available from Essencie AG, Winterthur (CH)),
- 90 to 110 p.p.m. by weight Orphea E 226 (a product available from Essencie AG, Winterthur (CH)),
- 90 to 110 p.p.m. by weight Bouquet E 163 (light yellow-to-brown-coloured essential oil based on Methyljonon, Hydroxycitronellal, a product available from Essencie AG, Winterthur (CH)),
- 250 to 300 p.p.m. by weight of Patchouly 5501 Esrolko 9355010 (red-to-brown-coloured essential oil from Indonesia based on Patchoulyöl Indonesien, Nopylacetat, a product available from Givaudan SA, Genf (CH)),
- 30 to 40 p.p.m. by weight Orphea 11445 Esrolko 9114450 (an orange-coloured, sweet-smelling essential oil based on Hydroxycitronellal, Citronellol; a product available from Givaudan SA, Genf (CH)),
- 5 to 15 p.p.m. by weight Citronellaöl Java, 85/35% ph. H.VI. Mel. Ind. (Citronella oil, coming from Java), an insect-repellent,
- 5 to 15 p.p.m. by weight Nelkenblätteröl 80/85% hell (a clove-tree leaf essential oil from Madagascar).

3. The moth-repelling composition according to claim 2, wherein the above-said components are present by the following amounts by weight in the composition:

- Linalöl synth (3,7-Dimethyl-1,6-octadien-3-ol),	5 p.p.thousand
- Linalylacetat synth (Linalöl acetate)	5 p.p.thousand
- Lavendelöl supérieure absolue Ether	25 p.p.thousand
- Lavendelöl HT E 2294	60 p.p.thousand
- Lavendelöl Maillette 7-59	60 p.p.thousand
- Fixolide	50 p.p.thousand
- Benzylsalicylat LG	50 p.p.thousand
- Resinoid Benzoe Siam 50% gereinigt	100 p.p.thousand
- Eau de Cologne S. 1243	100 p.p.thousand
- Orphea E 226	100 p.p.thousand
- Bouquet E 163	100 p.p.thousand
- Patchouly 35501 Esrolko 9355010	280 p.p.thousand
- Orphea 11445 Esrolko 9114450	35 p.p.thousand
- Citronellaöl Java, 85/35% ph. H.VI. Mel. Ind.	10 p.p.thousand
- Nelkenblätteröl 80/85% hell	10 p.p.thousand

4. Moth-repelling strips obtained from a porous support having been impregnated with a composition according to claims 1 to 3.

5. The moth-repelling strips according to claim 4, wherein said porous support is absorbent paper.



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## EUROPEAN SEARCH REPORT

Application Number  
EP 94 10 8855

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
A	DE-A-39 01 341 (DETIA FREYBERG GMBH) ---		A01N65/00 //(A01N65/00, 65:00,49:00, 31:16)
A	CH-A-89 687 (D.WEBER) 1 September 1921 ---		
A	DE-A-38 42 232 (S.BOEHM) ---		
A	CHEMICAL ABSTRACTS, vol. 84, no. 17, 26 April 1976, Columbus, Ohio, US; abstract no. 116871, KHARITONOVA, S. I. 'Prolonging effect of perfume fixatives and ethylcellulose in liquid repellent compositions' & MED. PARAZITOL. PARAZIT. BOLEZNI (1975), 44(6), 704-7 CODEN: MPPBAB, 1975 ---		
A	CHEMICAL ABSTRACTS, vol. 111, no. 13, 25 September 1989, Columbus, Ohio, US; abstract no. 111032, SETO, SADA0 'Manufacture of pet collars containing pest repellents' & JP-A-63 307 801 (SETO, SADA0) -----		TECHNICAL FIELDS SEARCHED (Int.Cl.5)  A01N
The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>22 September 1994</b>	Examiner <b>Donovan, T</b>
<b>CATEGORY OF CITED DOCUMENTS</b>			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure I : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application I : document cited for other reasons ----- & : member of the same patent family, corresponding document	

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